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29. COMMENTS ON THE VARIATIONS IN *JUNONIA ORITHYA* COMPLEX (LEPIDOPTERA: NYMPHALIDAE)

(With two text-figures)

Introduction

According to Wynter-Blyth (1957) and Eliot (1992), the species referable to the genus *Junonia* Hubner are very susceptible to seasonal variations and in most part of their range, they occur in both wet and dry season forms. One of the species, *J. orithya* though is otherwise well known and unmistakable sorely needed revision (D'Abrera 1985). During the course of the present studies, some representative populations of the species, collected from different localities in North-West India have been examined to record variations. Besides updating the description of the species by recording some additional variations, comments have also been made on its male genitalia.

Observations

Some of the already known and presently observed variations of the species *J. orithya* are given in Table 1.

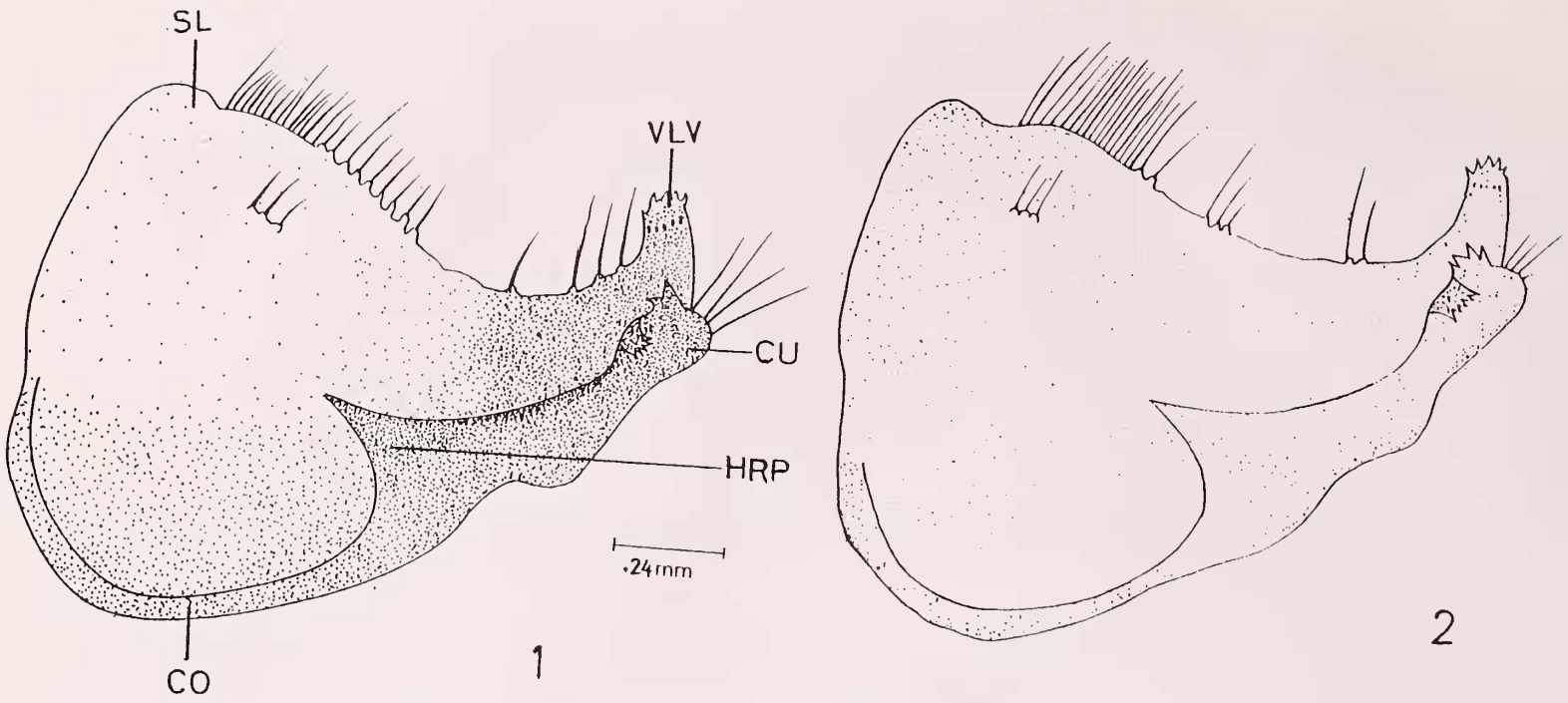
Owing to the variations within population of the individuals collected in the same or different seasons/ time of the year, we dissected as many as 16 males and 10 females of variable individuals from different localities. This was intended to confirm if all these individuals belong to the same species. The critical examination of the genitalia shows that one of the male specimens collected from Bajoura (Kulu, H.P. 1105 m) not only differs from the rest of the individuals of the species *J. orithya* collected from different localities but also from the closely allied individuals collected from the same locality on the same day at the same time. In the male genitalia of the Bajoura specimen (Fig. 1), the valvae (clasping organs) are relatively more strongly sclerotised. The cucullus has two well defined spines (compared to four in others), the costal margin is deeply incurved and the arrangement of the setae on the saccular margin is also different from *J. orithya* (Fig. 2). Besides, the transtilla of the Bajoura specimen is heavily setosed. Out of thirty six males, this is the only specimen in which the black ocellus in interspace 5 on the upperside of hindwing is completely ringed with orange and black.

According to D'Abrera (1984), *orithya* is represented by a subspecies *ocyale* Hubner with its distribution extending from India to Southern Burma. The naming of one of the sympatric populations at Bajoura (Kulu, H.P.) as a different subspecies is thus taxonomically not possible. However, inspite of all above mentioned variations, the lone specimen is not being named as a new species at the moment. The present study, however, confirms the view of D'Abrera (loc.cit.) that *orithya* is in need of revision. Further, it should be described under *Junonia* and not under *Precis* as has been done by Varshney (1990). The latter genus occurs only in Africa and the two genera are quite different from one another (Eliot 1992).

Material Examined: Himachal Pradesh: 1 male, 2 females, Rajgarh, 27. V.92; 1 male, Chambaghat, 28.V.92; 3 males, Nauni, 25.V.92; 1 male, Mcleodganj, 28.VI.92; 2 males, 3 females, Bhagsu Nag, 30.VI.92; 1 female,

TABLE I
VARIATIONS IN *Junonia orithya* LINNAEUS

S. No.	Taxonomic character	Earlier accounts (Bingham 1905, Wynter-Blyth 1957)	Present additional observations
1.	Forewing (upperside)	i) More than half of the base velvety-black 27 males, 5 females.	i) Dull fuliginous; 9 males, 21 females.
		ii) a. Cell area with two short transverse orange bars; 2 males, 5 females. b. Cell area without any bar; 10 males, 7 females.	ii) a. Cell area with one orange bar; 5 males, 5 females. b. Cell area with one blue bar; 12 males, 9 females. c. Cell area with two blue bars; 7 males.
		iii) Blue patch above the tornus; 30 males, 20 females.	iii) Brown patch above the tornus; 6 males, 6 females.
		iv) Large discal ocellus in interspace 2, generally obscure or is prominently ringed with orange yellow.	iv) a. Not so but large discal ocellus in interspace 2 is almost always present; 36 males, 26 females. b. Jet-black ocellus; 13 males. c. Half oranged ringed; 23 males. d. Prominently ringed with orange yellow; 26 females.
		v) A small black, orange ringed ocellus in interspace 5; 26 females.	v) a. Small black, orange ringed ocellus in interspace 5 is not seen in any male as mentioned by Bingham (1905). b. Black ocellus in interspace 5, ringed with white; 15 males. c. Half orange ringed; 21 males.
2.	Hindwing (upperside)	i) Velvety-black with blue shade towards base; 27 males, 5 females.	i) Dull fuliginous; 9 males. 21 males.
		ii) A post-discal black, white centred, orange and ringed black ocellus in interspace 2.	ii) Not seen in any specimen but the post-distal blue ocellus in interspce 2 is ringed with orange and black; 36 males, 26 females.
		iii) A round minutely white centred velvety-black spot (sometimes entirely absent) in interspace 5.	iii) a. It is present in both sexes as observed presently. b. The ocellus in interspace 5 is jet black; 16 males. c. Black ocellus with half orange ringed; 19 males. d. Black ocellus completely ringed with orange and black, one male, (Bajoura: Kulu, H.P. 1005 m)



Figs. 1, 2: Valvae of *Junonia orithya*. (Fig. 1, Bajoura specimen.)

Abbreviations: CO, Costa; CU, Cucullus; HRP, Harpe; SL, Sacculus; VLV, Valvulla.

Mahog, 14.VI.92; 1 male, Karaian, 15.VI.91; 1 male, Paonta Sahib, 1.XI.91, 1 female, 16.V.93; 4 males Bajoura, 28. vii. 92. Uttar Pradesh: 1 female, Ranikhet, 28.IV.92; 1 female, Aglar valley, 4. VI.92; 1 female, Vikas nagar, 19.VI.92; 1 male, Mussoorie, 3.VI.92. Punjab: 6 males, 1 female, Patiala, 20.III.92; 1 female, 8.IV.92; 2 females, 18.IX.91; 1 female, 3.X.91; 1 female, 11.XI.91; 1 female, 10.IV.91; 6 males, 1 female, 4.V.93; 1 male, Sirhind, 29.III.91; 3 males, 4 females, Ludhiana, 11.IV.91; 1 male, 8.IV.91; 1 male, Govindgarh, 13.IV.91; 1 male, 1 female, Anandpur Sahib, 27.IV.91; 1 female Dhuri, 10.IV.91; 1 male, 1 female, Talwara, 30.V.91; 1 female, Nabha, 20.IX.91; 1 female, Ropar, 28.XI.91.

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H.S. ROSE
NARENDER SHARMA
Department of Zoology,
Punjabi University,
Patiala-147 002, India.

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30. EFFECT OF TEMPERATURE ON HATCHING AND LARVAL DURATION IN *SEPSIS NITENS* (SEPSIDAE: DIPTERA)

Introduction

The bionomics of Sepsidae has not received the attention it deserves from medical entomologists, although they are important from veterinary and medical entomological view point. In India very little has been done on the bionomics and larval development of Sepsidae.

Temperature and humidity are known to affect the behaviour of many insects in nature and under laboratory conditions (Dakshinamurty 1948). I studied the population structure of Sepsidae of Aligarh District and also tested